

What is claimed is:

1. A system for analyzing a vibration frequency in a vehicle having a defect, the system comprising:
 - a sensor to sense the vibration frequency, wherein the sensor generates a signal in response to the vibration frequency; and
 - a signal spectrum analyzer in communication with the sensor, wherein the signal spectrum analyzer identifies the defect in response to the signal.
2. The system according to claim 1, further comprising:
 - a frequency selector in communication with the sensor and configured to select a frequency component having a relative maximum amplitude from a plurality of frequency components of the vibration frequency.
3. The system according to claim 2, wherein the frequency selector further comprises:
 - a signal filter for filtering the signal.
4. The system according to claim 3, wherein the frequency selector further comprises:
 - a programmable gate device for controlling the filter.
5. The system according to claim 2, wherein the signal spectrum analyzer comprises:
 - a microprocessor that utilizes a linear transformer to identify the plurality of frequency components of the vibration frequency in response to the signal.

6. The system according to claim 5, further comprising:
an analog digital converter in communication with the microprocessor and configured to convert the signal from a format to another format.
7. The system according to claim 5, wherein the microprocessor is further configured to determine the frequency component having the relative maximum amplitude in response to the maximum amplitude.
8. The system according to claim 7, wherein the microprocessor is further configured to identify a range of frequencies associated with the frequency component having the relative maximum amplitude.
9. The system according to claim 8, further comprising a table configured to provide the range of frequencies in response to a query, the query including the frequency component having the relative maximum amplitude.
10. The system according to claim 9, wherein the table is further configured to respond with a probable faulty component of the vehicle in response to a query including the frequency component having the relative maximum amplitude.
11. An adapter for analyzing vibration in a device having a defect, the adapter comprising:
a receiver that receives a signal generated in response to the vibration; and
a microprocessor using a linear transform to identify a plurality of frequency components in response to the signal, the microprocessor being further configured to determine a frequency component related to the defect, wherein the microprocessor is configured to determine the defect.

12. The adapter according to claim 11, further comprising:
a frequency selector in communication with the microprocessor, the frequency selector being configured to isolate the frequency component related to the defect.
13. The adapter according to claim 11, wherein the frequency selector further comprises:
a signal filter to condition the signal.
14. The adapter according to claim 13, further comprising:
a programmable gate configured to modulate the signal filter in response to instructions from the microprocessor.
15. The adapter according to claim 11, further comprising:
an analog to digital converter to convert the signals from a format to another format.
16. The adapter according to claim 11, further comprising:
a table configured to provide a probable faulty component of the device in response to a query, the query including the frequency component related to the defect.
17. An apparatus for analyzing a vibration of a device, the apparatus comprising:
means for sensing the vibration, the vibration having a plurality of frequency components;
means for generating a signal corresponding to the sensed vibration;
means for determining a frequency component having a relative maximum amplitude from the plurality of frequency components; and
means for determining a probable faulty component of the device in response to the frequency component having the relative maximum amplitude.

18. The apparatus according to claim 17, further comprising:
means for displaying at least one of the probable faulty component and the frequency component having the relative maximum amplitude.
19. The apparatus according to claim 17, further comprising:
means for querying a table with the frequency component having the relative maximum amplitude; and
means for returning the probable faulty component in response to the query.
20. The apparatus according to claim 19, further comprising:
means for updating the table in response to the probable faulty component being incorrect.
21. The apparatus according to claim 17, further comprising:
means for locating a source of the vibration.
22. The apparatus according to claim 21, further comprising:
means for sensing the vibration at a plurality of locations; and
means for triangulating the source of the vibration.
23. A method of analyzing a vibration of a device, the method comprising:
sensing the vibration, the vibration having a plurality of frequency components;
generating a signal corresponding to the sensed vibration;
determining a frequency component having a relative maximum amplitude from the plurality of frequency components; and
determining a probable faulty component of the device in response to the frequency component having the relative maximum amplitude.
24. The method according to claim 23, further comprising:

displaying at least one of the probable faulty component and the frequency component having the relative maximum amplitude.

25. The method according to claim 23, further comprising:
querying a table with the frequency component having the relative maximum amplitude; and
returning the probable faulty component in response to the query.
26. The method according to claim 25, further comprising:
updating the table in response to the probable faulty component being incorrect.
27. The method according to claim 23, further comprising:
locating a source of the vibration.
28. The method according to claim 27, further comprising:
sensing the vibration at a plurality of locations; and
triangulating the source of the vibration.